prototype proteins for such a preparation are the MiAMP2 homologues having sequences according to SEQ ID NOS:1, 3 and 5. Support for amended Claim 1 can be found in the Specification in which in all cases, the peptides of the invention do not contain cysteines in the X position of the formula. Support for the other amendments can be found in the claims as filed. No new matter has been added herewith.

The changes made to the claims by the current amendmnet, including **[deletions]** and additions, are shown on an attached sheet entitled **VERSION WITH MARKINGS TO SHOW CHANGES MADE**, which follows the signature page of this Amendment.

Rejection under 35 U.S.C. §112, first paragraph

Claims 16 and 41 were rejected under 35 U.S.C. §112, first paragraph as containing subject matter not described in the Specification in such a way as to convey that the inventors had possession of the claimed invention. Specifically, the Examiner believed that Claim 16 introduced new matter into the claim.

The phrase regarding "a computer modeling program" has been removed from the claim, thus obviating this rejection.

Rejection under 35 U.S.C. §112, second paragraph

Claims 1-3, 11, 13, 16-23, 30, 34 and 41 were rejected under 35 U.S.C. §112, second paragraph as being indefinite for the following reasons:

The Examiner believed that the use of the term "relative" in Claims 1 and 18 was unclear. This term has been removed from the claims.

The Examiner believed that Claim 3 needed spacing between SEQ ID NO:2 and SEQ ID NO:5, so such spacing has been added.

The word "said" has been removed from Claim 13 to remove a need for antecedent basis.

The Examiner believes that Claim 16 is indefinite with respect to the language "obtaining or designing", "substantially", and a missing step of "isolating the protein". Thus, Claim 16 has been amended as follows: "substituting" has been inserted instead of "replacing", "obtaining" has been replaced with the language "identifying in a known sequence", thus clarifying the step involved. Please note that the language "substantially" has been removed from the claim. Applicants believe that the claim as amended is now definite. In addition, one of ordinary skill in the art could readily obtain from published sequence information a sequence which forms a helix-turn-helix structure. One of ordinary skill in the art could also design, using readily

available methods, a sequence which forms the foregoing structure. As the person of ordinary skill in the art would intuitively read in to step (a) of the method of claim 16 the steps necessary to obtain or design the desired sequence, applicant's submit that it is not necessary to recite such steps in the claim.

Claim 17 has been amended to recite "tyrosine or phenylalanine".

The term "substantially" has been removed from Claim 20.

The Examiner believed Claims 19 and 21 indefinite as to the recitation of residues 29 to 94 for SEQ ID NO:23 and 31 to 85 of SEQ ID NO:24. Please note that the claim was previously amended to residues 29 to 94 of SEQ ID NO:24 and residues 31 to 85 of SEQ ID NO:25 (see the amendment of December 8, 2000), therefore, the rejections are moot.

The Examiner believed that Claim 22 was indefinite for recitation of SEQ ID NO:27 as having 17 residues while the Sequence listing only indicates 16. However, in the Sequence listing submitted with the Amendment of December 8, 2000, SEQ ID NO:27 is indicated as having 17 residues and when counted, there are indeed 17 residues. Therefore, this rejection is moot.

The examiner believed that Claim 34 was indefinite because the claim did not indicate the effect of controlling. However, Claim 34 has been amended to recite "A method of controlling microbial infestation of a plant, the method comprising; treating said plant with an amount of the composition according to claim 11 to reduce or stop microbial infestation of the plant.". Thus, Applicants believe the claim is definite.

Rejection under 35 U.S.C. §102(a)

Claim 1 was rejected under 35 U.S.C. §102(a) as being anticipated by Tatar et al (EP 093652, November 9, 1996). The Examiner believed that since Tatar discloses peptides to vaccinate against *E. coli* enterotoxins which contain the formula C3XC12XC3XC, that Tatar et al anticipates the peptide of Claim 16. However, Claim 1 has been amended to recite "C-3X-C-(10-12)X-C-3X-C (SEQ ID Nos: 37-39) wherein X is any amino acid residue other than cysteine, and C is cysteine". The peptide of Tatar et al. has a Cysteine as one of the X amino acid residues in the formula. Thus, Tatar et al does not anticipate the claimed invention because Tatar et al. does not disclose a peptide with the sequence "C-3X-C-(10-12)X-C-3X-C (SEQ ID Nos: 37-39) wherein X is any amino acid residue other than cysteine, and C is cysteine".

Rejection under 35 U.S.C. §102(a)

Claim 1 was rejected under 35 U.S.C. §102(a) as being anticipated by Voerman et al (WO 96/13585, May 9, 1996). The Examiner believed that since Voerman et al. discloses a medicament and pharmaceutical preparation wherein the sequence has the formula C3XC10XC3XC, it anticipates the claimed invention. However, Claim 16 has been amended to recite "C-3X-C-(10-12)X-C-3X-C (SEQ ID Nos: 37-39) wherein X is any amino acid residue other than cysteine, and C is cysteine". The peptide of Voerman et al. has a Cysteine as one of the X amino acid residues in the formula. Thus, Voerman et al does not anticipate the claimed invention because Voerman et al. does not disclose a peptide with the sequence "C-3X-C-(10-12)X-C-3X-C (SEQ ID Nos: 37-39) wherein X is any amino acid residue other than cysteine, and C is cysteine".

Conclusion

Should there be any further questions regarding the above-captioned patent application, the Examiner is respectfully requested to contact the undersigned attorney at the telephone number below.

Please charge any additional fees, including any fees for additional extension of time, or credit overpayment to Deposit Account No. 11-1410.

Respectfully submitted,

KNOBBE, MARTENS, OLSON & BEAR, LLP

Dated: 9/10/01

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VERSION WITH MARKINGS TO SHOW CHANGES MADE

1. **(Thrice Amended)** A protein fragment having antimicrobial activity, wherein said protein fragment is a polypeptide comprising a **[relative]** cysteine spacing of C-3X-C-(10-12)X-C-3X-C (SEQ ID Nos: 37-39) wherein X is any amino acid residue other than cysteine, and C is cysteine.

3. **(Twice Amended)** An isolated or purified protein having a sequence selected from SEQ ID NO: 1, SEQ ID NO: 3, or SEQ ID NO: 5.

13. **(Thrice Amended)** A method of controlling microbial infestation of a plant by reducing the number of **[said]** microbes, the method comprising treating said plant with an antimicrobial protein according to claim 1 in an amount effective to reduce the number of said microbes.

16. **(Thrice Amended)** A method of preparing an antimicrobial protein, said method comprising;

a) **[obtaining from]**identifying in a known sequence or designing**[, using a computer modeling program,]** an amino acid sequence which forms a helix-turn-helix structure;

b) **[replacing]**substituting individual residues in said amino acid sequence to achieve a sequence having the same distribution of positively charged residues and cysteine residues**[in said amino acid sequence; and]**as the distribution found in a protein having a sequence selected from the group consisting of SEQ ID NO:1, SEQ ID NO:3 and SEQ ID NO:5;

c) synthesizing chemically or expressing by recombinant DNA techniques in liquid culture an antimicrobial **[a]** protein comprising said substituted amino acid sequence **[chemically or by recombinant DNA techniques in liquid culture]**; and

d) isolating said antimicrobial protein.

17. **(Amended)** The protein fragment of Claim 1, wherein said protein fragment is a polypeptide containing a relative cysteine and **[tyrosine/phenylalanine]**tyrosine or phenylalanine spacing of Z-2X-C-3X-C-(10-12)X-C-3X-C-3X-Z (SEQ ID NOS:34-36) wherein X is any amino acid residue, and C is cysteine, and Z is tyrosine or phenylalanine.

20. **(Amended)** The protein fragment of Claim 1 which is truncated, **[but]** wherein said truncated protein fragment **[has substantially the same]** retains the antimicrobial activity of the nontruncated protein fragment **[as the nontruncated protein fragment]**.

34. **(Amended)** A method of **[controlling]**inhibiting microbial infestation of a plant, the method comprising; treating said plant with **[a]**an effective amount of the composition according to claim 11 for a period sufficient to inhibit microbial infestation of the plant.

Please add the following claim

~~35~~. The method of Claim 16 further comprising testing the antimicrobial protein for antimicrobial activity.